

PHYSICS
NOISE IN ARTIFICIAL BIOLOGICAL MEMBRANES

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Biological membranes are made up of a lipid bi-layer containing channels that allow the flow of ions. This flow of charge creates a conduction noise across the bi-layer and we want to study this to get a better understanding of how real biological membranes work. There tends to be disagreements in previous work when it comes to $1/f$ noise, and we want to find out where it comes from. No good theoretical approximation can be made because you are not able to measure anything below the Johnson noise (normal background noise.) We present a detailed description of our set-up, methods for membrane application, and our electronic investigation. Although the research has not been completed we have a comparison of expected to actual data for the first main step in this experiment which is forming a biological membrane.